ACCREDITATION

- The content of this webinar presentation has been approved for CNE and RT CE credit.

- Measures have been taken by the Utah Department of Health, Bureau of Health Promotion, to ensure there is no conflict of interest in this activity.

Asthma on the Navajo Reservation and Beyond

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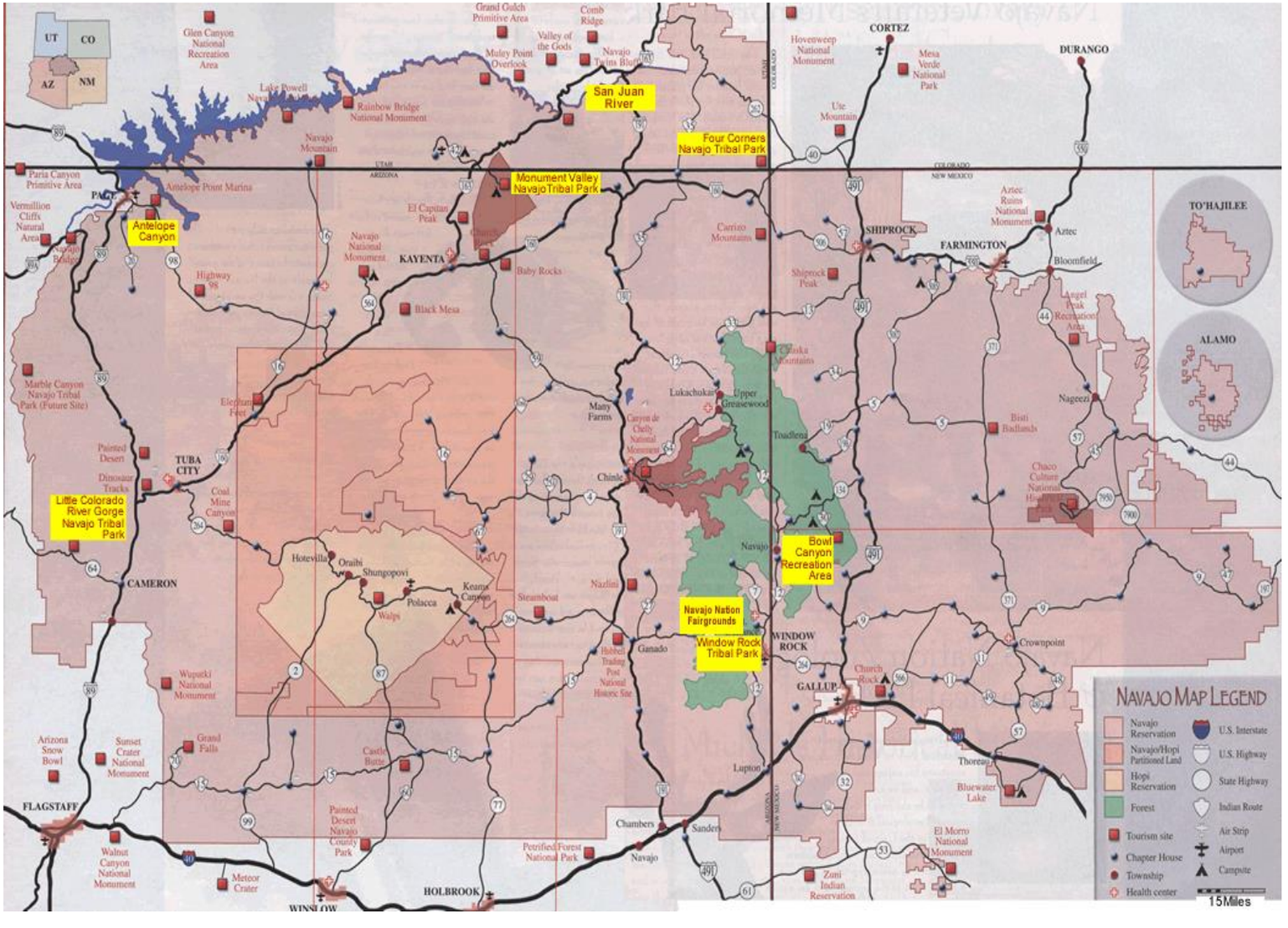
Allergy and Immunology
Department of Dermatology

HEALTH
UNIVERSITY OF UTAH

NAVAJO RESERVATION

- **Northeast Arizona**
- **Population: 300,000**
- **Chinle Service Unit: 40,000**
- **Half under 25 years old**
- **High rate of asthma: 20+%**

NAVAJO RESERVATION



NAVAJO RESERVATION

- Specific Challenges:
  - Housing, power, running water, sanitation, crowding, infection, biomass burning

NAVAJO RESERVATION

- Specific Challenges:
  - Transportation, poverty, nutrition

NAVAJO RESERVATION

ASTHMA IN CHINLE – IS IT A PROBLEM?

- Nearly 3000 children with a related diagnosis in the past year
- Nearly 2000 kids with a related diagnosis on 2 separate visits
- Prevalence: 15-25%

HYPOTHESIS/QUESTIONS

- How can we improve asthma care?
  - Severity assessment
  - Controller medications
  - Spirometry
  - Asthma Control Test
  - Asthma Action Plans
  - Well child care
- These are our “care measures”

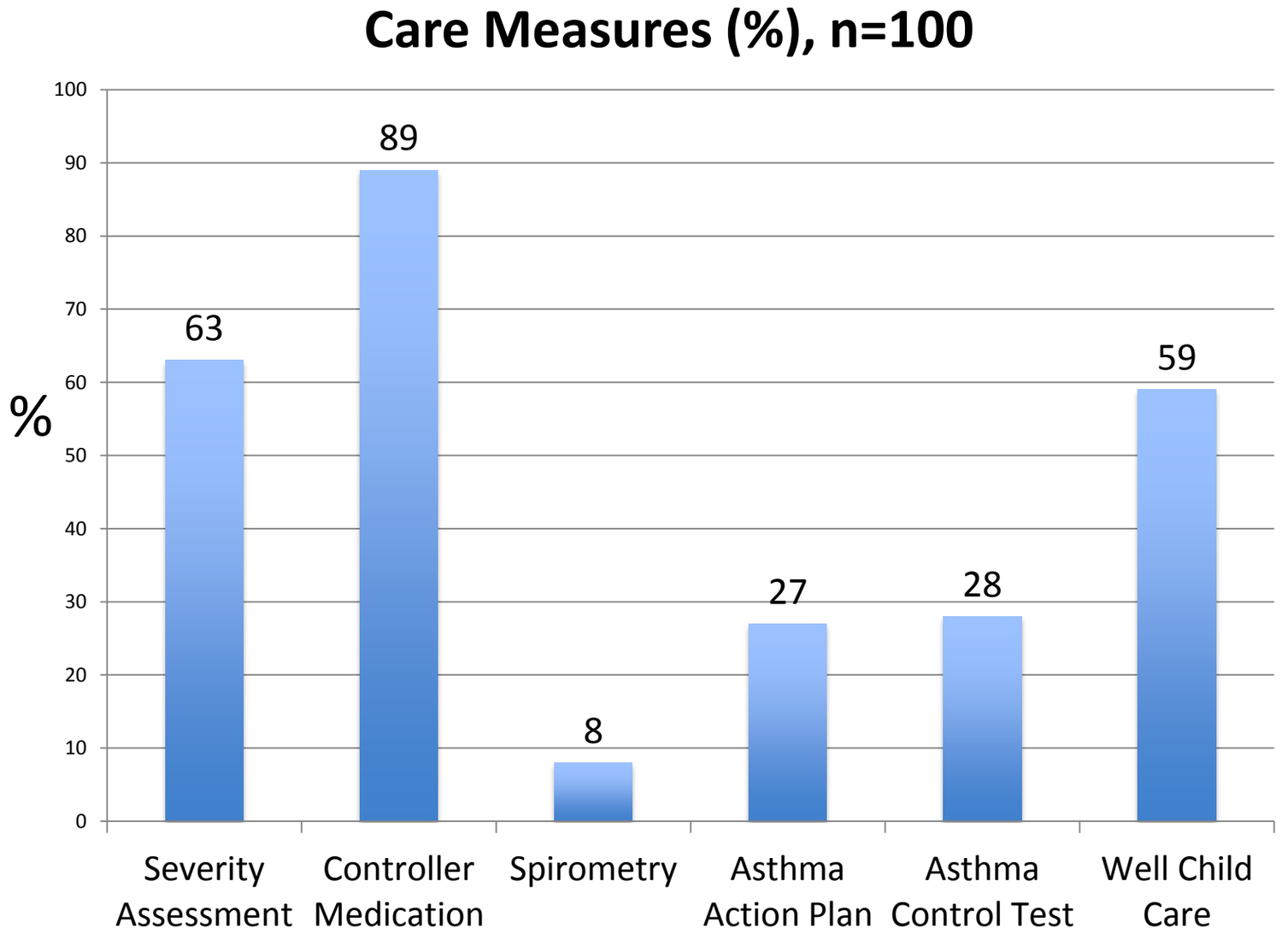
OUTCOMES

- Examine rate of:
  - Exacerbation
  - Systemic steroid use
  - Emergency Department, Urgent Care and pediatric clinic utilization
  - Hospitalization
- These are our “outcome measures”

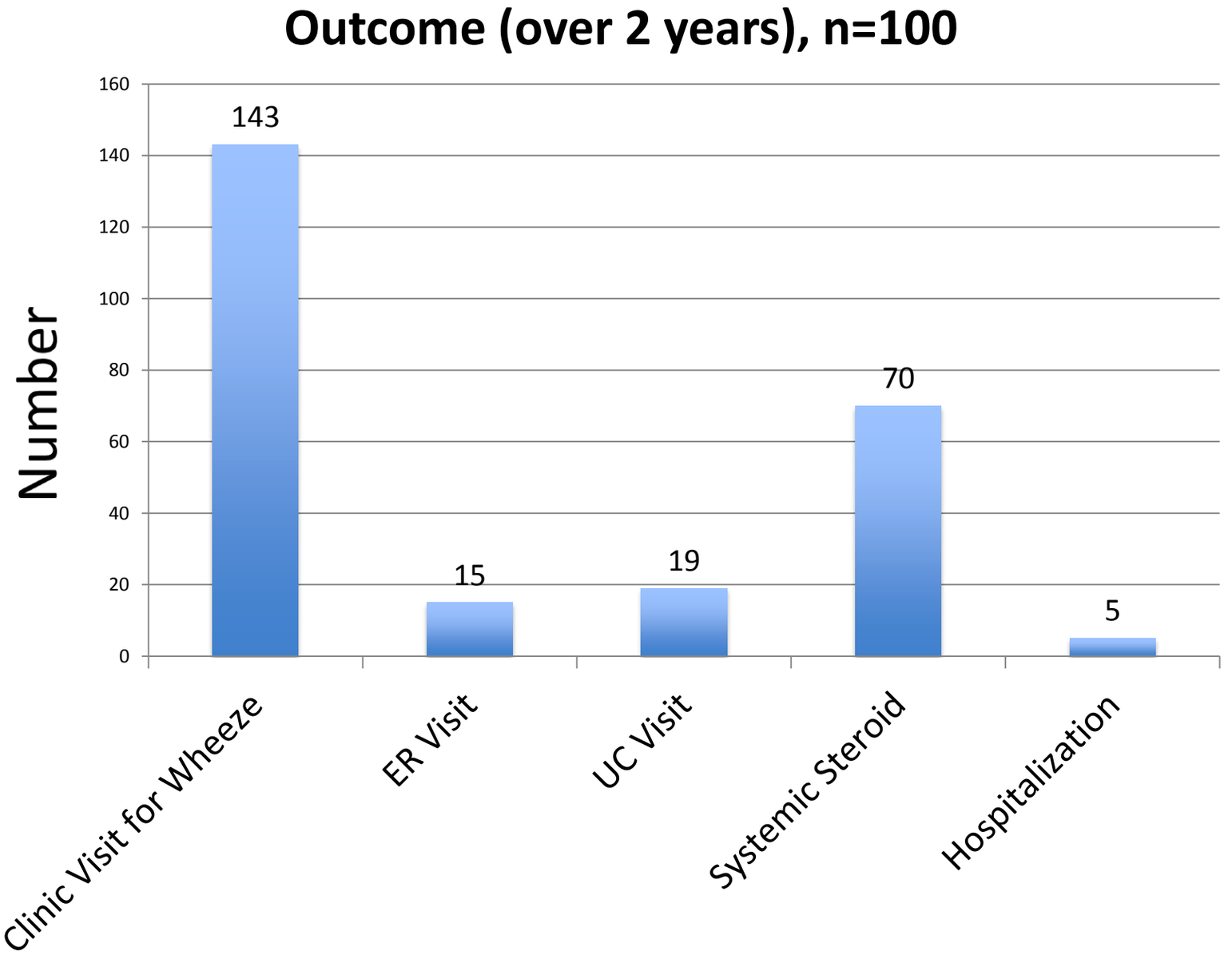
METHODS

- Reviewed 100 charts
  - Kids age 6-17
  - Diagnosis of "asthma"
  - Care Measures
  - Outcome Measures
- Provider survey:
  - Physicians
  - Mid-level providers
  - Respiratory therapists
  - Pharmacists
- "Town hall" meeting

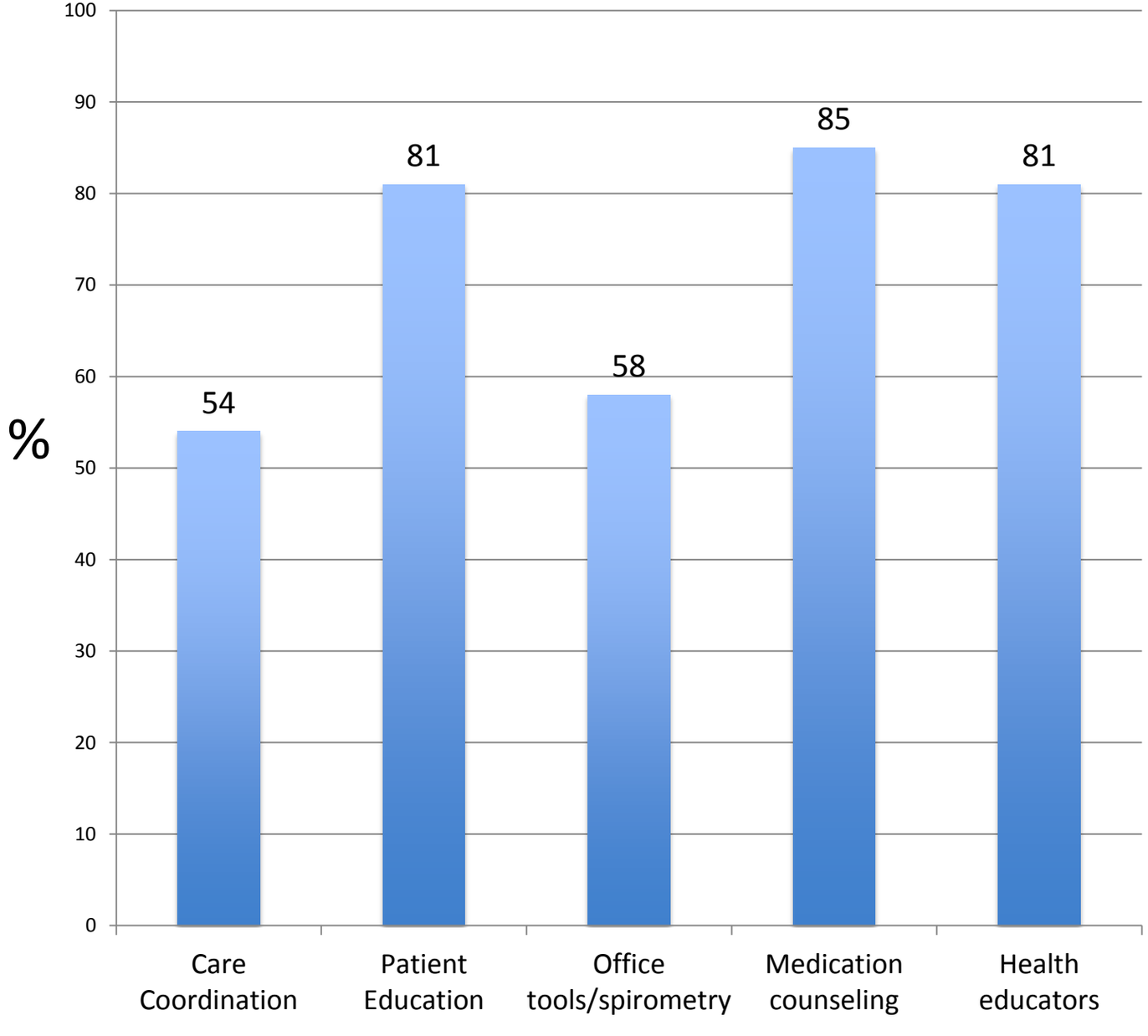
ASTHMA IN CHINLE: HOW DO WE DO?



ASTHMA IN CHINLE: HOW DO WE DO?



PROVIDER SURVEY – HOW CAN WE IMPROVE?



HYPOTHESIS

- Asthma is highly prevalent and poorly controlled because:
  - Poor adherence and health literacy
  - Choice of controller medication
  - Wood/coal burning stoves
  - Severe RSV and infections
  - Pollutants and particulate (dust)

WHAT DO WE DO ABOUT ADHERENCE?

- Remind
- Educate
- Engage the community (schools, etc.)
- Simplify medical regimen

ADHERENCE: HOW BAD IS IT?

- Adults admitted with asthma exacerbation
- Given OCS and ICS at discharge
- Teaching, no cost medication
- Informed that med use assessed
- Electronic monitors, self report, canister weight, pill count

Corticosteroid Use after Hospital Discharge among High-risk Adults with Asthma

Jerry A. Krishnan, Kristin A. Riekert, Jonathan V. McCoy, Dana Y. Stewart, Spencer Schmidt, Arjun Chanmugam, Peter Hill, and Cynthia S. Rand

Departments of Medicine and Emergency Medicine, Johns Hopkins University, Baltimore, Maryland; Department of Emergency Medicine, University of Pennsylvania, Philadelphia, Pennsylvania; and Department of Pediatrics, Wright State University, Dayton, Ohio

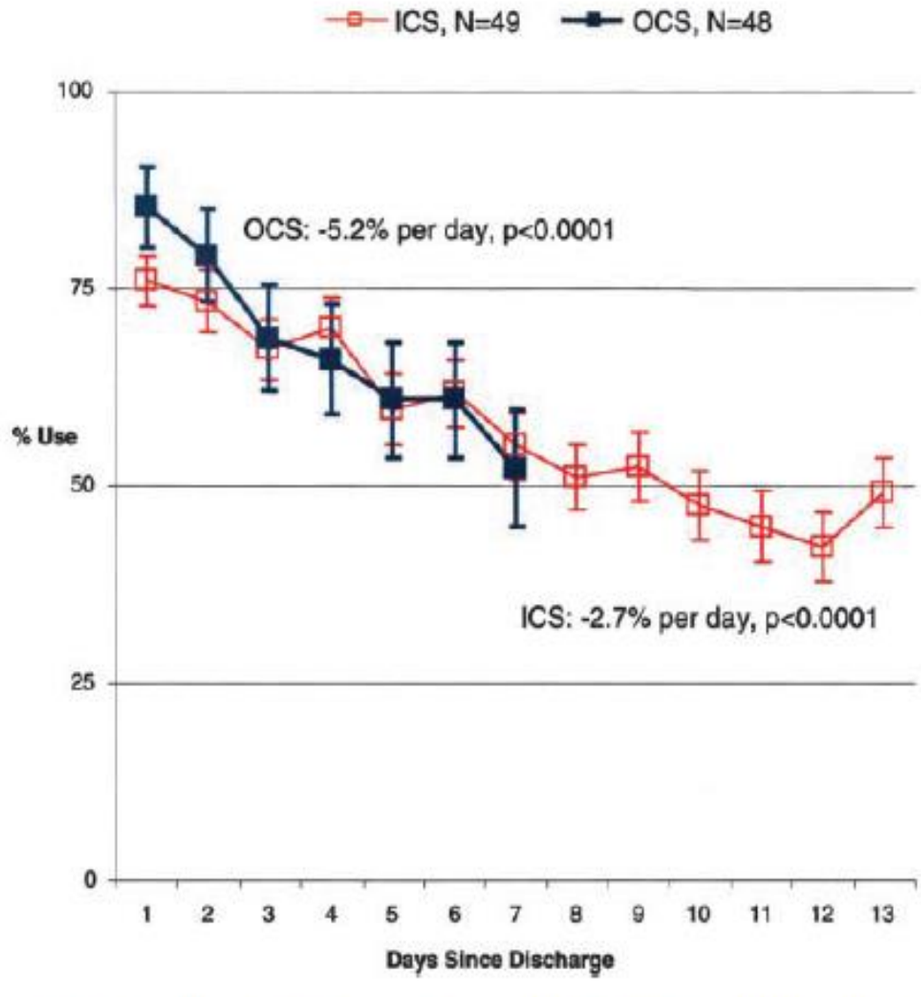
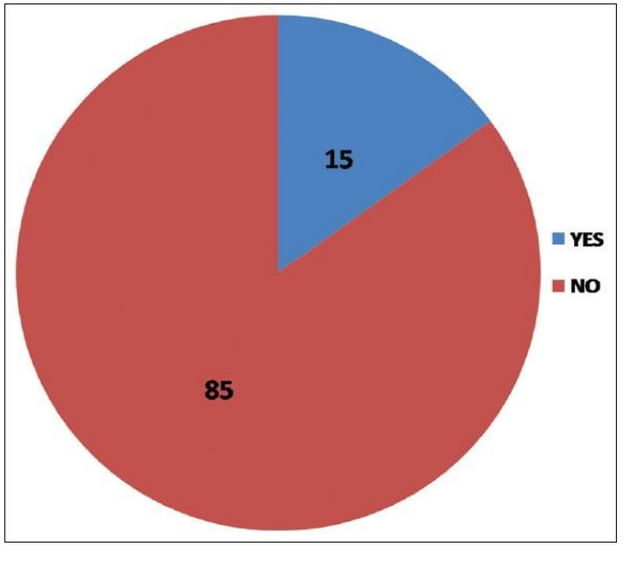


Figure 1. Corticosteroid use after hospital discharge home. Electronically measured use (percentage prescribed dose; *error bars* represent SE) of inhaled corticosteroids (ICS) and oral corticosteroids (OCS) after hospital discharge. Use was measured using electronic medication monitors.

AMERICAN JOURNAL OF RESPIRATORY AND CRITICAL CARE MEDICINE VOL 170 2004

HOW BAD CAN IT GET?

- 6 month study of Utah pharmacy database
- 14-16% of patients with 'satisfactory' adherence
- Considerable problem



J Clin Pharm Ther, 2015

WHAT DO WE DO ABOUT ADHERENCE?

Clinical Communications

A tailored mobile health intervention to improve adherence and asthma control in minority adolescents

Giselle Mosnaim, MD, MS[a], Hong Li, PhD[a], Molly Martin, MD, MAPP[b], DeJuran Richardson, PhD[a,c], Paula Jo Belice, MS[a], Elizabeth Avery, MSPH[a], Agustina Silberstein, MD[a], Jason Leigh, PhD[d], Robert Kenyon, PhD[e], Steve Jones, PhD[f], Bruce Bender, PhD[g], and Lynda H. Powell, PhD[a]

Clinical Implications

- A tailored intervention delivered on a mobile phone platform, integrating low-literacy design strategies and basic principles of behavior change, may be a powerful way to promote increased adherence and asthma control among underserved minority adolescents.

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- Intervention on a mobile phone platform
- Low-literacy design
- Underserved minority adolescents
- Endpoints:
  - ACT improvement
  - ICS adherence improvement

WHAT DO WE DO ABOUT ADHERENCE?

- ICS adherence >50%: 8% → 58%
- ACT: 18 → 23

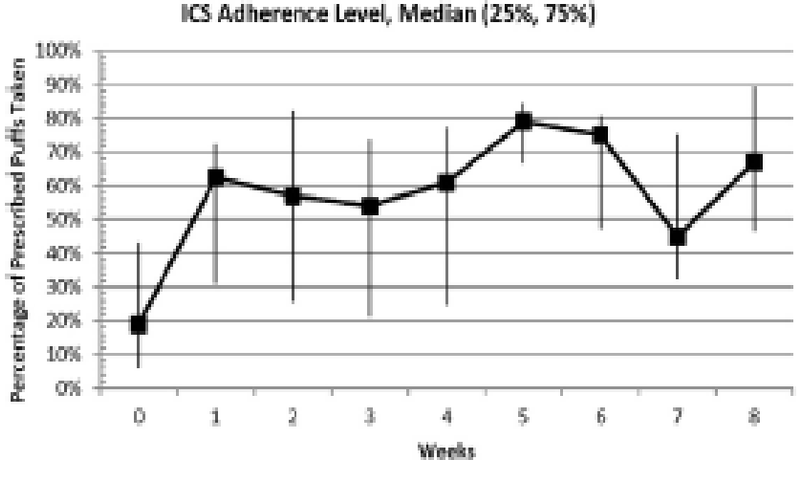

FIGURE 2. Median percent ICS adherence at baseline and during treatment. This represents median ICS adherence at baseline and each week of the 8-week active treatment phase for the cohort of study participants.

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WHAT DO WE DO ABOUT ADHERENCE?

- Remind
- Educate
- Engage the community (schools, etc.)
- Simplify medical regimen

Rescue Use of Beclomethasone and Albuterol in a Single Inhaler for Mild Asthma

- 6 month, double-blind, randomized parallel group trial
- Italian cohort, 455 patients, adults
- 4 week run in, then divided mild persistent asthmatics in four groups
  - Placebo bid plus ICS/SABA as needed (as needed combo)
  - Placebo bid plus SABA as needed (as needed SABA)
  - ICS bid plus SABA as needed (usual treatment)
  - ICS/SABA bid plus SABA as needed (regular combo)

RESULTS

- 237 exacerbations (most mild)
- Significantly fewer in:
  - As needed ICS/SABA
  - Regular ICS
- Less total steroid in as-needed ICS/SABA group

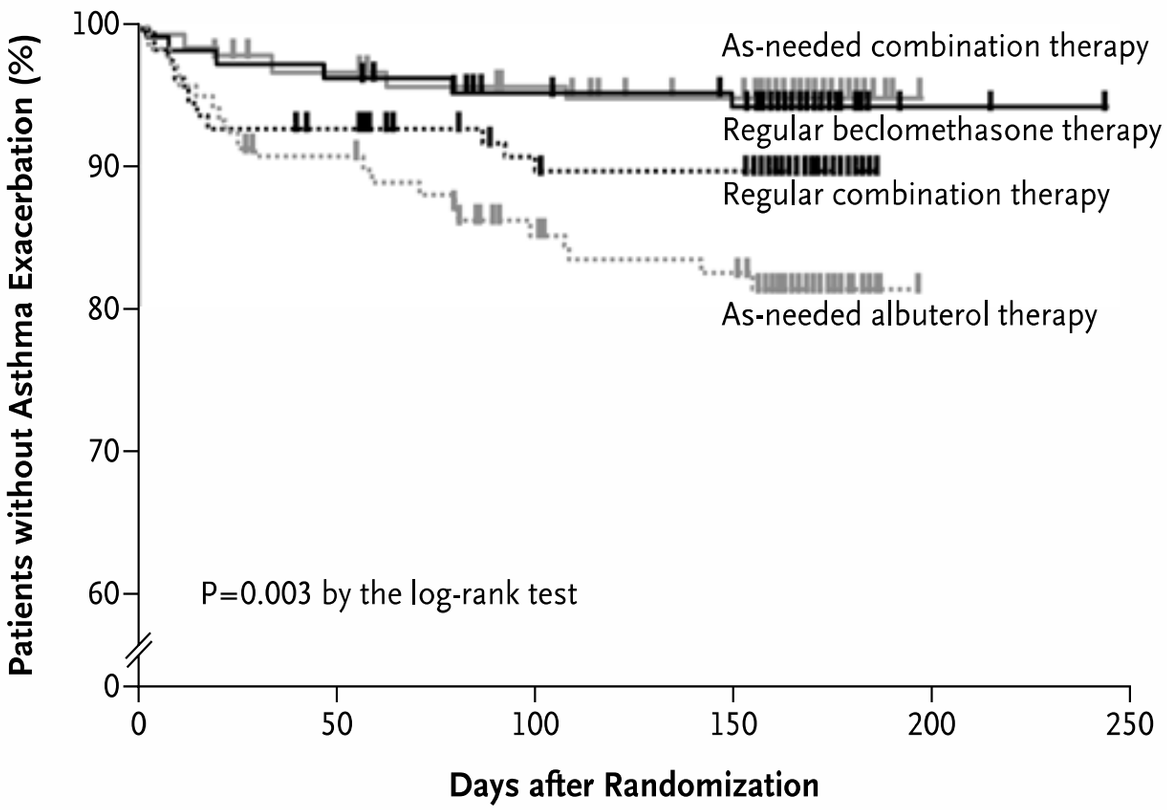


Figure 4. Kaplan–Meier Estimates of the Time to First Asthma Exacerbation in the Modified Intention-to-Treat Population.

Tick marks represent a first asthma exacerbation. As-needed combination therapy consisted of placebo twice daily plus 250 μg of beclomethasone and 100 μg of albuterol in a single inhaler as needed; as-needed albuterol therapy, placebo twice daily plus 100 μg of albuterol as needed; regular beclomethasone therapy, 250 μg of beclomethasone twice daily and 100 μg of albuterol as needed; and regular combination therapy, 250 μg of beclomethasone and 100 μg of albuterol in a single inhaler twice daily plus 100 μg of albuterol as needed.

CONCLUSION

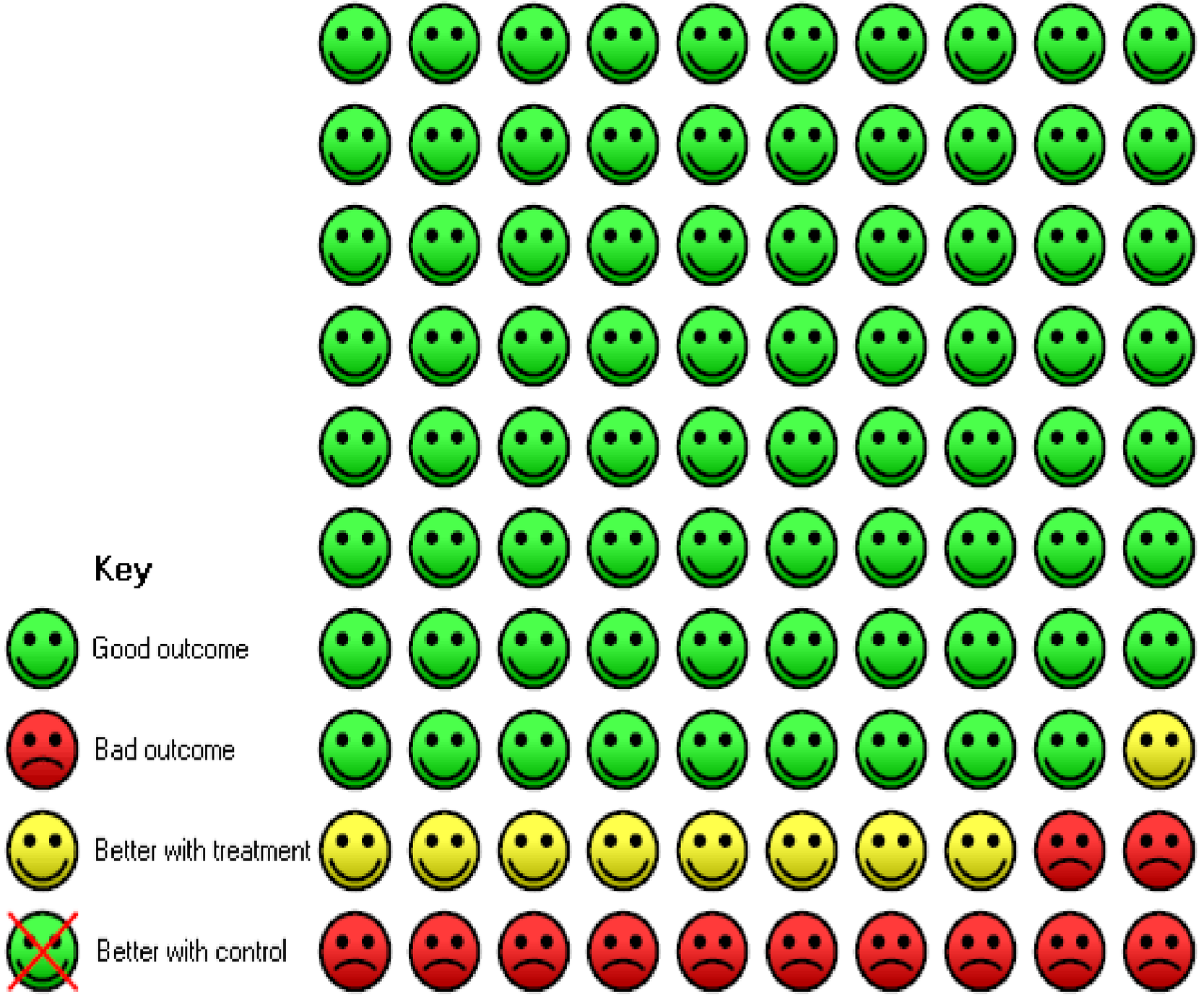
- As needed ICS/SABA may be as effective as regular ICS in adults with mild asthma
- Similar studies in children: TREXA, trend toward effectiveness

Intermittent inhaled corticosteroid therapy versus placebo for persistent asthma in children and adults (Review)

Chong J, Haran C, Chauhan BF, Asher I

THE COCHRANE COLLABORATION®

Figure 3. In the placebo group 21 people out of 100 had a exacerbation requiring oral corticosteroids over 44 weeks, compared to 12 (95% CI 6 to 20) out of 100 for the inhaled corticosteroids treatment group.



HYPOTHESIS

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Response profiles to fluticasone and montelukast in mild-to-moderate persistent childhood asthma

- More kids respond to fluticasone
- Patients exhibit differential response

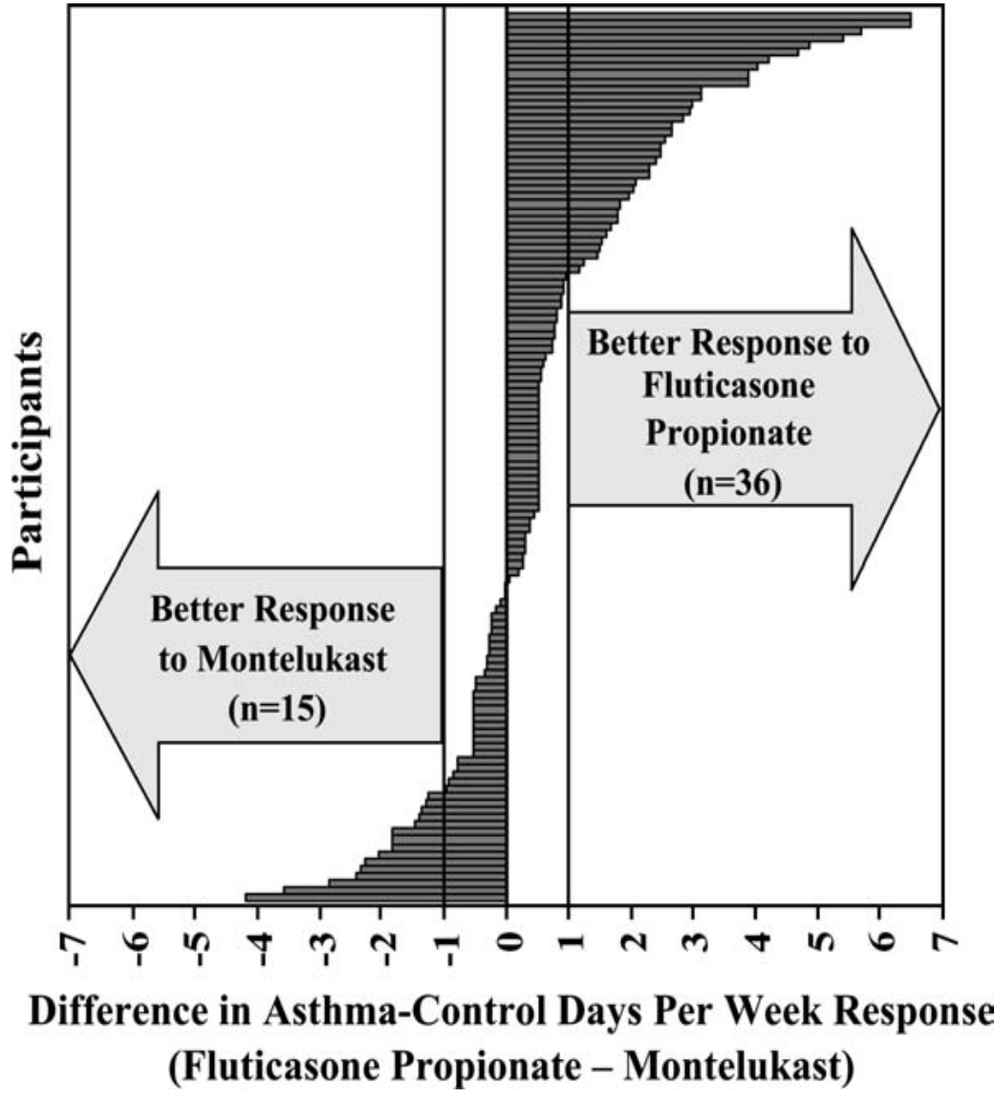

FIG 2. Difference in ACDs between fluticasone propionate and montelukast (fluticasone minus montelukast) for individual participants. Each *line* designates a single participant.

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HOW DOES THIS APPLY TO NATIVE AMERICANS?

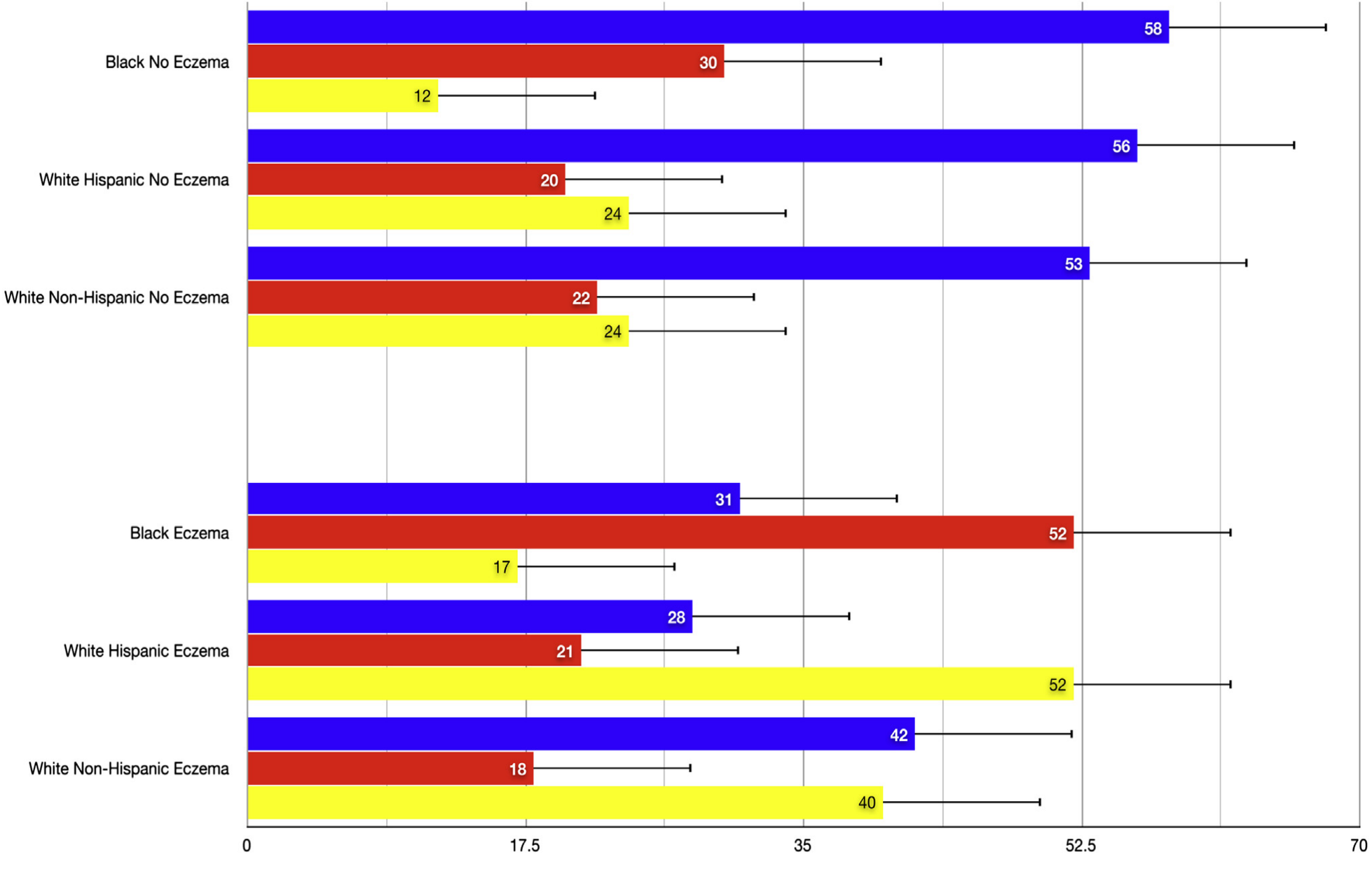

FIG 1. Overall probability of best response to step-up therapies with ICS *(red bars)*, LABA *(blue bars)*, or an LTRA *(orange bars)* according to race/ethnicity by presence and absence of a history of eczema (active or past).

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AUGUST 2014

HYPOTHESIS

- Asthma is highly prevalent and poorly controlled because:
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  - Pollutants and particulate (dust)

WHAT WILL WE DO?

- Consortium:
  - University of Utah
  - National Jewish Health
  - University of Arizona
  - Colorado Children's
- Community engagement intervention
- School based
- Spirometry, in-school dosing, stove repair, etc.
- This will take years!

CONCLUSIONS

- Asthma is a complex disease
- Multipronged, team approach is essential
- We have much to learn!

THANK YOU!